



# **A Guide to Approvals for Recycling Sites, Leaf and Yard Waste Composting Sites and Compost Use**

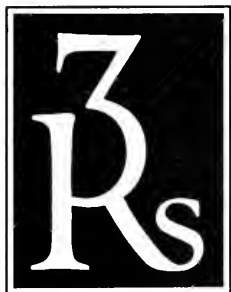
As Required Under Ontario Regulation 101/94.



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Ministry of Environment and Energy





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As Required Under Ontario Regulation 101/94.

 **Ontario**

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Ministry of Environment and Energy

To obtain copies of this or other guides to the 3Rs Regulations, telephone, write or fax:

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The ministry welcomes comments on the guides. Please submit them to the above address.

Questions regarding the regulations should be directed to the ministry's Waste Reduction Office in Toronto at (416) 325-4440, or to a Ministry of Environment and Energy Regional or District Office listed in Appendix A.

Copies of Regulation 101/94 are available from Publications Ontario at 1-800-668-9938 or 326-5300 in Toronto.

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# PREFACE

This guide is one of a series to help waste generators, packagers, municipalities and recycling site operators understand and comply with the requirements of the 3Rs Regulations that became law March 3, 1994.

The regulations are an integral part of Ontario's Waste Reduction Action Plan, announced in February 1991 by the Minister of Environment and Energy. The plan is aimed at reducing the amount of waste going to disposal by at least 50 per cent by the year 2000 compared to the base year of 1987.

Ontario will achieve this goal with a strategy based on the 3Rs — reduction, reuse and recycling.

The 3Rs Regulations are designed to ensure that industrial, commercial and institutional (IC&I) sectors, as well as municipalities, develop programs to reduce the amount of valuable resources going to disposal.

The five new regulations, made under the *Environmental Protection Act*, are:

Ontario Regulation 101/94: Recycling and Composting of Municipal Waste

Ontario Regulation 102/94: Waste Audits and Waste Reduction Workplans

Ontario Regulation 103/94: Industrial, Commercial and Institutional Source Separation Programs

Ontario Regulation 104/94: Packaging Audits and Packaging Reduction Workplans

Ontario Regulation 105/94: Definitions (Amendments to Regulation 347)

This guide will help waste generators and recycling site operators comply with the minimum requirements for establishing Municipal Waste Recycling Sites, Municipal Waste Recycling Depots, Leaf and Yard Waste Composting Sites and Compost Use under Regulation 101/94. The guide also includes information about exemptions which are available for certain sites. For a legal interpretation of requirements, refer to the Official Regulation.

The other guides to the 3Rs Regulations in this series are:

- *A Guide to Source Separation of Recyclable Materials and Leaf and Yard Waste Systems for Municipalities as Required under Ontario Regulation 101/94*
- *A Guide to Source Separation of Recyclable Materials for Industrial, Commercial and Institutional Sectors and Multi-Unit Residential Buildings as Required under Ontario Regulation 103/94*
- *A Guide to Waste Audits and Reduction Workplans for Industrial, Commercial and Institutional Sectors as Required under Ontario Regulation 102/94*
- *A Guide to Waste Audits and Reduction Workplans for Construction and Demolition Projects as Required under Ontario Regulation 102/94*
- *A Guide to Packaging Audits and Reduction Workplans as Required under Ontario Regulation 104/94*

#### **Ontario's Waste Reduction Target**

The Government of Ontario has established a target to decrease the amount of waste going to disposal by at least 50 per cent by the year 2000 compared to the base year of 1987. This is a *provincial* target that applies to the total amount of non-hazardous solid waste generated in Ontario from all sources. While this target is not a legal requirement for individual municipalities and IC&I establishments under the 3Rs Regulations, many have voluntarily adopted it, and some have set an even higher waste reduction target.

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# 1.0

## INTRODUCTION

Waste management activities in Ontario are subject to the *Environmental Protection Act* and regulations under the Act. Section 27 of the Act prohibits the establishment, use or operation of waste disposal sites or waste management systems without a Certificate of Approval issued by the ministry. A waste disposal site is any land or facility where wastes are handled, including transfer stations, processing sites, and landfills.

Regulation 101/94 (Recycling and Composting of Municipal Waste) contains specific requirements for waste disposal sites used to recycle waste. These sites prepare the wastes for use by others, such as manufacturers, who convert the wastes into a new product. The following three types of waste disposal sites are subject to Regulation 101/94:

1. **Municipal Waste Recycling Site** - where wastes are sorted and prepared for end-users of secondary materials.
2. **Municipal Waste Recycling Depot** - a convenient location where the public can deposit source-separated materials.
3. **Leaf and Yard Waste Composting Site** - where leaf and yard waste is converted into compost.

Under Regulation 101/94, if these sites meet certain standards, then they may be exempt from approvals under section 27 of the Act. This will speed up the establishment of the necessary recycling infrastructure in Ontario.

### **Municipal Waste**

The term municipal waste is used to distinguish non-hazardous waste from other classes of waste; it does not imply ownership or control of the waste by a municipality.

Regulation 101/94 uses the same definition as Regulation 347.  
Municipal waste means:

- a) any waste, whether or not it is owned, controlled or managed by a municipality, except,
  - (i) hazardous waste,
  - (ii) liquid industrial waste, or
  - (iii) gaseous waste, and
- b) solid fuel, whether or not it is waste, that is derived in whole or in part from the waste included in clause (a)

The regulation also provides quality criteria for compost produced from leaf and yard waste and a streamlined approval for the use of this material.

Chapter 2 of this guide describes the criteria under which Regulation 101/94 applies and describes the exemptions available under Regulation 101/94. Chapter 3 explains the design and operating requirements that apply to Municipal Waste Recycling Sites. Chapter 4 explains the design and operating requirements that apply to Municipal Waste Recycling Depots. Chapter 5 explains additional design and operating requirements that apply only to Leaf and Yard Waste Composting Sites. The requirements for the use of compost made from leaf and yard waste are described in Chapter 6. Chapter 7 explains the exemptions which are available under Regulation 347 for wastes which are considered recyclable materials.

The appendices provide additional information which may be useful to site operators.

Copies of the notification and reporting forms required under Regulation 101/94 are also included.

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## 2.0

# DESCRIPTION OF REGULATION 101/94

The application of Regulation 101/94 involves a two-step process:

- First, determine whether the disposal site fits the definition of one of the three waste disposal sites.
- Second, determine if any exemptions or streamlined approvals provisions may be applied to the site.

Figure 2.1 provides a detailed “decision-tree” to help guide proponents through the process.

The streamlined approvals process and other exemptions do not relieve a proponent from other legislative or regulatory provisions which may apply. Proponents should seek the advice of professionals qualified in these and other areas before proceeding with a project.

Proponents may apply for a Certificate of Approval even if they meet the requirements of the streamlined approvals process. Cases where this might happen include where unscheduled wastes not in schedules 1, 2, or 3 of Regulation 101/94 may be received or where the owner wants more flexibility in siting and operations.

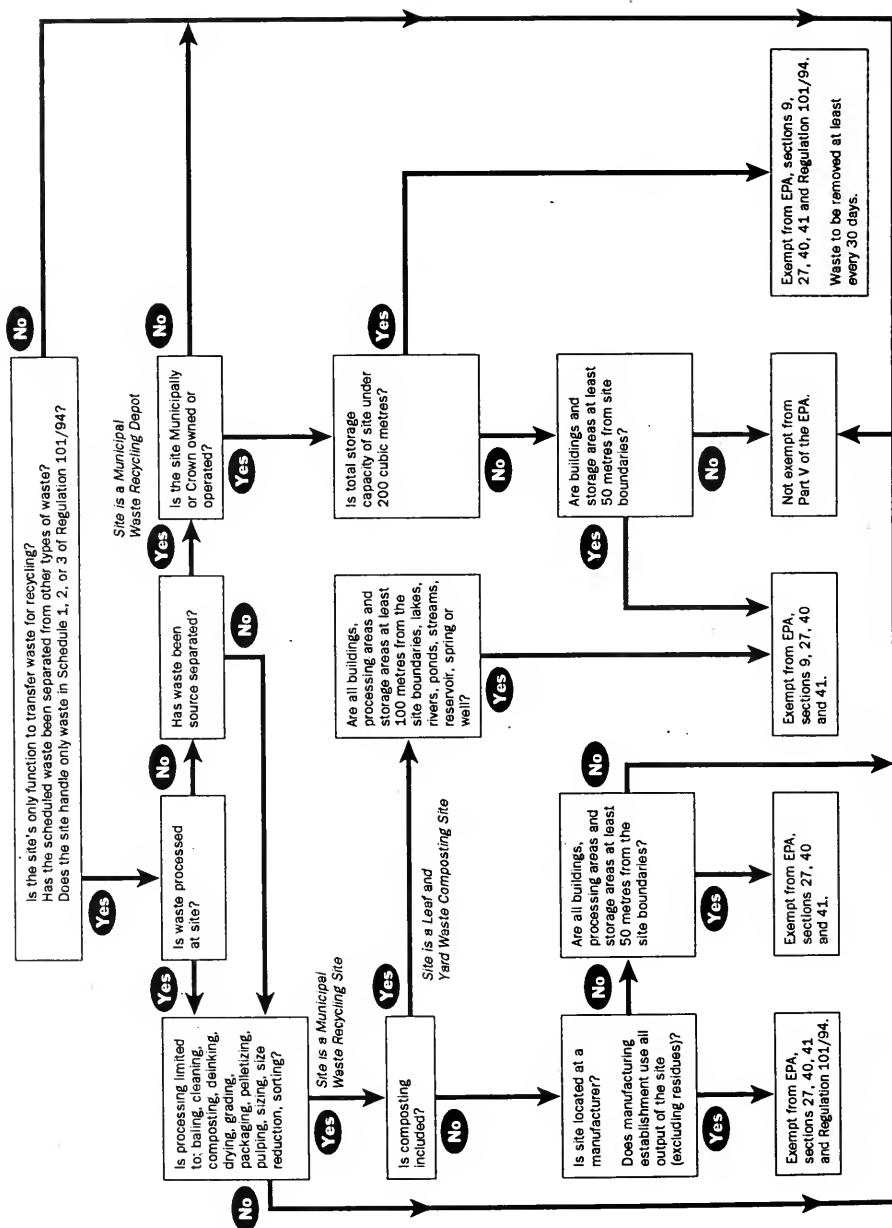
Streamlined approvals and exemption apply for both private and publicly-owned sites. The exemption for Municipal Waste Recycling Depots, however, is restricted to sites that are publicly owned.

### ***2.1 Determining if the Site Is Classified Under Regulation 101/94.***

Regulation 101/94 defines three types of waste disposal sites: Municipal Waste Recycling Site, Municipal Waste Recycling Depot, Leaf and Yard Waste Composting Site. To determine if a specific site falls into one of these three categories, a proponent must address the following requirements.

- the purpose of the site.
- the types of wastes handled.
- how the scheduled wastes have been separated from other wastes.
- the processing activities at the site.

Figure 2.1: Determining if Regulation 101/94 Applies to a Waste Disposal Site and if any Exemptions are Available



### **2.1.1 Purpose of Site**

The waste disposal site must only accept waste for recycling or composting, as described in subsequent chapters of this guide.

If the site accepts waste for disposal or for transfer to disposal, then it is not classified under Regulation 101/94.

### **2.1.2 Waste Type**

To be classified as a Municipal Waste Recycling Site or a Municipal Waste Recycling Depot, the site must be limited to handling wastes listed in Schedules 1, 2 or 3 (see Appendix B) of the regulation. These wastes are all recyclable. The intent of this restriction is to reduce the likelihood that wastes which cannot be recycled are allowed to accumulate at a site. To be classified as a Leaf and Yard Waste Composting Site, the site must receive only leaf and yard waste for composting, and clean wood for use as a bulking agent.

Schedule 1 is also used to specify the minimum wastes a municipality must include in its Blue Box waste management system.

### **2.1.3 Separation of scheduled waste from other types of waste**

A Municipal Waste Recycling Site or a Leaf and Yard Waste Composting Site may receive only waste separated into the categories listed in Schedules 1, 2 or 3 at source or at some other location, such as another waste disposal site.

A Municipal Waste Recycling Depot, however, must receive only source-separated waste.

### **Mandatory Recycling Programs Required**

Regulation 101/94 requires specified municipalities to implement recycling programs which include collection of Blue Box wastes, home composting of organic wastes, and composting of leaf and yard waste.

Regulation 103/94 requires specified industrial, commercial and institutional establishments to implement source-separation programs for certain wastes.

The requirements for these topics are described in the following guides:

- *A Guide to Source Separation of Recyclable Materials and Leaf and Yard Waste Systems for Municipalities, and*
- *A Guide to Source Separation of Recyclable Materials for the Industrial, Commercial and Institutional Sectors and Multi-Unit Residential Buildings.*

### **2.1.4 Waste Processing Activities**

#### **Municipal Waste Recycling Site**

A Municipal Waste Recycling Site accepts wastes from industrial, commercial or industrial generators, such as small or light industrial buildings and offices, or wastes collected by a municipal Blue Box waste management system. Typically, the wastes are sorted, bulked and transferred to end users. For example, commingled steel and aluminum beverage and food containers are sorted from other Blue Box wastes, baled and shipped to a steel-making plant or aluminum manufacturer for recycling.

For the site to be classified as a Municipal Waste Recycling Site, unit operations and processes are restricted to the following:

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■ sorting, grading, sizing:	classifying by some attribute of the waste
■ cleaning:	removing contaminants
■ drying:	removing water
■ de-inking:	removing ink
■ size reduction:	shredding, crushing, breaking
■ pulping:	producing pulp fibre
■ pelletizing:	forming beads or pellets
■ composting:	decomposing biologically under aerobic conditions
■ baling, packaging:	compressing and binding or containerizing

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Sites that use a thermal or chemical conversion process, or other processes not listed above, cannot be classified as a Municipal Waste Recycling Site.

### **Municipal Waste Recycling Depot**

A Municipal Waste Recycling Depot usually serves as a convenient location for the public to deposit source-separated wastes into appropriately marked storage containers. Depots may serve as alternatives or extensions to municipal Blue Box collection systems for areas with a low population density or for multi-unit residential buildings. The depots serve as central collection points from which municipalities or other operators pick up source-separated wastes for delivery to a Municipal Waste Recycling Site. For the site to be classified as a Municipal Waste Recycling Depot, it must meet the following criteria:

- Only source-separated waste can be received.
- None of the unit operations and processes for a Municipal Waste Recycling Site are undertaken (see above).

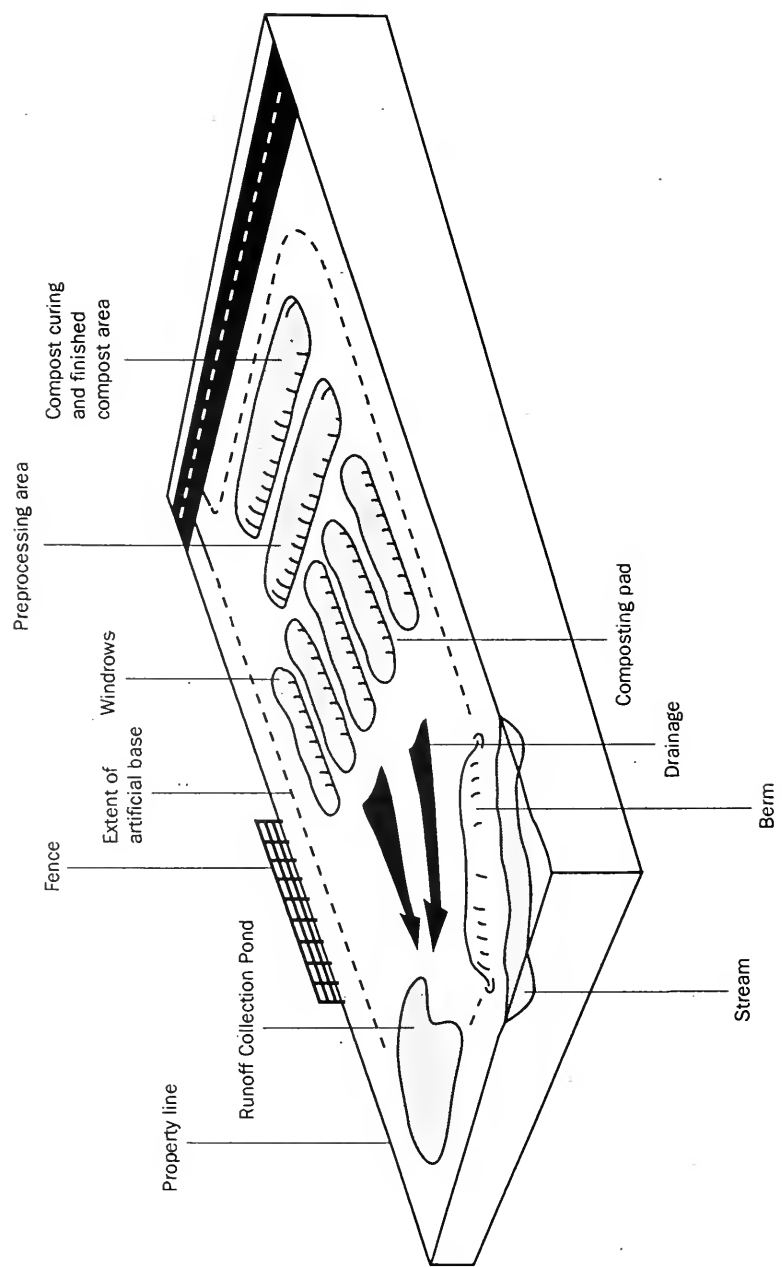
### **Leaf and Yard Waste Composting Site**

Leaf and Yard Waste Composting Sites accept leaf and yard waste and process it into compost. In some cases, a Leaf and Yard Waste Composting Site may be a component of a multi-purpose Municipal Waste Recycling Site.

The turned windrow method of composting is acceptable for a Leaf and Yard Waste Composting Site. Turned windrow composting is likely to be the most commonly adopted approach due to capital cost considerations and the seasonal nature of leaf and yard waste generation. The layout of a typical windrow leaf and yard waste composting facility is presented in Figure 2.2. Other composting methods, such as the aerated static pile method or in-vessel systems, may also be used.

A Leaf and Yard Composting Site is also defined as a Municipal Waste Recycling Site, and therefore, may operate with any of the unit operations allowed for a Municipal Waste Recycling Site in addition to composting.

Figure 2.2: Typical Layout of Windrow Composting Facility





### **What is composting?**

Composting is an aerobic biological process, conducted under controlled, engineered conditions designed to decompose and stabilize the organic fraction of solid waste.

For additional information on the leaf and yard waste composting process and on composting site operations, contact the Association of Municipal Recycling Co-ordinators (AMRC), 25 Douglas Street, Guelph, Ontario N1H 2S7.

Telephone: (519) 823-1990 Fax: (519) 823-0084.

The following publications may be purchased from the Association:

- *A Review of Composting Principles and Municipal Programs (Part 1), 1993.*
- *AMRC Leaf and Yard Waste Composting Manual: A Municipal Operations Guide, 1993.*

Some leaf and yard wastes, especially source-separated leaves, may be suitable for direct land application. Employing this option requires approvals under Part V of the *Environmental Protection Act*. Appendix C of this guide summarizes regulatory requirements for land application programs. The local District Office of the ministry can provide further information on the approval requirements for land application programs.

## **2.2 Determining if a Site Meets the Exemption Criteria**

Once it has been determined that a waste disposal site qualifies as a Municipal Waste Recycling Site, Municipal Waste Recycling Depot or a Leaf and Yard Waste Composting Site, the next step is to determine if there are any exemptions or streamlined approvals that apply.

### **2.2.1 Exemption Criteria for a Municipal Waste Recycling Site**

#### **Integrated Waste Recycling Site**

An exemption is provided in Regulation 101/94 for a Municipal Waste Recycling Site which is on the same site as a manufacturer that uses all of the recyclable materials produced by the Municipal Waste Recycling Site. This site is essentially integrated into the manufacturing operations and supplies recovered materials to the manufacturing process. Sites which

qualify are exempt from Section 27, 40 and 41 of the *Environmental Protection Act* and Regulation 101/94. Being exempt from Regulation 101/94 means it need not follow the requirements described in Chapter 3 of this guide.

An example of this type of exemption is a site which receives, sorts, pulps and de-inks various categories of waste paper as part of a pulp and paper mill that manufactures paper products using the waste paper as a partial replacement for virgin wood fibre.

Another example is a site which receives, sorts and shreds various categories of waste wood and waste paper as part of a manufacturing operation which produces construction products from the wood and paper.

### **Other Municipal Waste Recycling Sites**

All other Municipal Waste Recycling Sites are exempt from Sections 27, 40 and 41 of the Act if all buildings and areas used for processing or storage are at least 50 metres (164 feet) from the site boundaries. These would include buildings and areas used for unloading, processing or storing of incoming and in-process wastes or storage and shipping of materials recovered from the wastes. Site uses not related to these material handling operations, such as parking lots, office areas, weigh scales and roads may be located less than 50 metres from the site property line.

### **2.2.2 Exemption Criteria for a Municipal Waste Recycling Depot**

There are two ways a Municipal Waste Recycling Depot may be exempt under Regulation 101/94. The first exemption pertains to small depots ( $<200 \text{ m}^3$ ), the second to large depots ( $\geq 200 \text{ m}^3$ ). In either case, to be exempt, a Municipal Waste Recycling Depot must be owned or operated by a municipality or the Crown (Province of Ontario) or operated exclusively for a municipality or the Crown.

#### **Small Depot (Less than 200 cubic metres)**

A Municipal Waste Recycling Depot which has a total container storage capacity available on site of under 200 cubic metres (262 cubic yards) is exempt from virtually all provisions of Regulation 101/94 and Section 9, 27, 40 and 41 of the *Environmental Protection Act*. All waste deposited at the site must be removed at least every 30 days.

An Exemption is provided because the quantities of wastes accepted and stored on-site are very small and containers are sufficient safeguards against environmental damage.

### **Large Depot (Greater than 200 cubic metres)**

A larger capacity Municipal Waste Recycling Depot is exempt from Sections 9, 27, 40 and 41 of the Act if there is a 50 metre (164 feet) separation distance measured from the property line to any areas of the site, used for receiving, storing or shipping of wastes. Parking areas and access roads may be less than 50 metres from the property line.

An exemption is provided for both small and large depots from Section 9 approvals (Certificate of Approval for Air). Restrictions on waste processing and site operations already provide the necessary safeguards.

### **2.2.3 Exemption Criteria for a Leaf and Yard Waste Composting Site**

Leaf and Yard Waste Composting Sites are exempt from Sections 9, 27, 40 and 41 of the Act if all buildings and areas used for processing or storage are at least 100 metres (328 feet) from the site boundaries and 100 metres from any lake, river, pond, stream, reservoir, spring or well. These would include areas used for unloading, processing or storing of incoming and in-process leaf and yard wastes or storage and shipping of compost produced from the wastes. Site uses not related to these waste handling operations, such as parking lots, office areas, weigh scales and roads may be located less than 100 metres from the site property line or water.

The exemptions do not apply to existing or new composting operations at an approved landfill or dump. In this situation, an application must be made to amend the existing Certificate of Approval, or obtain a separate Certificate of Approval for the composting operation. On the application, the site operator must address landfill operations, location of composting site (fill or buffer area) and leachate and runoff management concerns. The local District Office (see Appendix A) of the ministry should be consulted before proceeding with this type of site.

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## 3.0

# REQUIREMENTS FOR A MUNICIPAL WASTE RECYCLING SITE

This chapter describes the general requirements for Municipal Waste Recycling and Leaf and Yard Waste Composting Sites. Chapter 5 describes several exceptions as well as additional requirements for Leaf and Yard Waste Composting Sites. Chapter 6 has additional requirements related to the shipment and use of compost produced at a Leaf and Yard Waste Composting Site.

Note that the *Environmental Protection Act* includes provisions for Provincial Officers to have access to waste disposal sites at reasonable times for inspection of records and plans, investigation, sampling, and monitoring compliance with regulatory requirements.

### 3.1 Plans and Related Documents

Regulation 101/94 requires owners and operators of Municipal Waste Recycling Sites to prepare and retain files at the site for various plans and related documents. Some of these may be similar to those normally submitted when applying for a Certificate of Approval.

#### 3.1.1 Vicinity and Site Layout Plans

A vicinity map should locate the site in relation to its nearby surroundings and should show information such as prominent landmarks, waterways, transportation routes and neighbouring land uses. This information is contained in commercial maps, land deeds or subdivision plans and can be obtained from municipal planning departments.

A site plan should identify each major physical feature of the site in relation to other features. Detailed information about these items may be available from engineering or architectural drawings.

Regulation 101/94 requires that site plans must show all services (electrical, water, gas), buildings, processing units, roads, loading areas, unloading areas and storage areas. In addition it may be useful to show related information such as distances between site areas and the nearest site boundary, prominent land features and security measures.

### **3.1.2 Operating Plans**

The function of an operating plan is to describe in detail how the technical objectives of the site will be accomplished. Regulation 101/94 requires that the operating plan contain the following information:

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- **processing systems and equipment descriptions,**
  - **waste handling and storage procedures,**
  - **maximum processing capability of the site,**
  - **expected quantity of residues from processing, and**
  - **descriptions of the training planned for personnel.**
- 

The operating plan should fully describe the practices to be used to properly process the wastes that the site will receive. This description should include information about all aspects but especially the following:

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- **a process diagram showing equipment used, material flow rates and process efficiencies,**
  - **inspection procedures for waste and materials produced,**
  - **types and quantities of wastes processed and residues generated,**
  - **methods and equipment for waste shipment to the site,**
  - **storage capacity of input waste, in-process waste, processed waste and residues,**
  - **shipping practices and destination of recyclable materials and residues,**
  - **laboratory or testing procedures to be used,**
  - **labour and other resources required to operate the site,**
  - **record keeping practices for site operations, and**
  - **management structure.**
- 

### **3.1.3 Emergency Response Plans**

Emergency response plans shall contain sufficient information to allow community or other emergency services to respond effectively and safely to emergency situations.

Regulation 101/94 requires that emergency response plans address all potential emergency situations at the site including fire, explosion, flood, spills and disruption of electrical service. Each plan must address the following:

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- **procedures to be used for each type of emergency,**
  - **personnel who will be responsible,**
  - **equipment and communications systems to be used,**
  - **notification procedures to government officials and others, and**
  - **procedures to coordinate operations with other agencies.**
-

### 3.1.4 Contingency Plans

Disruptions in operations at a Municipal Waste Recycling Site may occur due to events beyond the control of the operator. These include labour disputes, severe weather, or major equipment breakdown. A site should be prepared to stop receiving waste in the event of a protracted disruption.

Contingency plans should also address what the operator would do in the event that processed waste or other materials cannot be shipped from the site. The plan could include using short-term off-site storage facilities during the disruption period.

## 3.2 Notification

Regulation 101/94 requires a notice be given to those listed below at least 90 days before waste is to be received:

- 
- the clerk of both local and upper tier municipality where the site is located,
  - the owner of every parcel of land within 120 metres of the site,
  - the Director of the Waste Reduction Office of the ministry, and
  - the District Officer of the ministry's District Office where the site is located.
- 

A notice must also be given to the same list of persons within 90 days before a significant change is made in the type of wastes accepted, the site capacity or the processes and operations used at the site.

The proponent must re-issue the start up notice if the first shipment of waste is not accepted within 180 days of giving notice to the Director. A waste disposal site, other than a landfill, dump or incinerator, which has been issued a Certificate of Approval and which qualifies for an exemption under Regulation 101/94 as a Municipal Waste Recycling Site, may request a cancellation of the Certificate and operate under the streamlined approvals process. In this instance, the start up notice need only be sent to the Director of the Waste Reduction Office and the ministry's District Office.

See Appendix A for a listing of ministry offices where notices can be sent. Samples of the forms that proponents need to use to satisfy the notification requirements are included at the end of this guide. Proponents may use other forms provided that they contain the required information.

### **3.3 Operation and Design Requirements**

The owner and operator of a Municipal Waste Recycling Site must comply with operation and design requirements specified in the regulation. These are minimum requirements and many operators will choose to implement additional controls and operating practices to accommodate site specific situations or management policies.

Some requirements are to ensure that site operations facilitate recycling. These include restrictions on the amount of residue generated on-site and on the destination for shipments of the processed waste or recyclable materials.

Other requirements are to ensure adequate environmental protection measures at the site. These, however, should be considered as minimum measures. All site operators are encouraged to use the best possible practices, taking into consideration the local environment, the types of wastes handled, and site capacity.

#### **3.3.1 Site Access**

All site functions, such as waste handling, processing, and storage, must be kept secure from unauthorized access. This can be accomplished by erecting suitable fencing or by conducting all operating activities inside a building. In addition, unauthorized entry must be prevented by measures such as locking all entrances when an attendant is not present.

#### **3.3.2 Signs**

Municipal Waste Recycling Sites must have signs which indicate when the site is open and the name and telephone number of a contact person in case of an emergency.

In addition, if records are kept at another location, then the address of that location must be displayed.

#### **3.3.3 Staff Training**

Staff must be knowledgeable in the processes and machinery normally used at the site, as well as emergency procedures. Training should include safety precautions when operating equipment and handling wastes. It would also be a good idea to educate staff about the regulatory requirements in Regulation 101/94 and other pertinent environmental and labour legislation.

#### **3.3.4 Site Maintenance**

All areas used by vehicular traffic, such as access routes and parking areas, as well as loading and unloading areas, must be maintained in good condition. The objective is to allow clear and unencumbered access to waste storage and processing areas for those using the site, fire-fighting crews, ambulances or other emergency equipment.

#### **3.3.5 Preventing Environmental Impacts**

Reasonable care must be exercised to ensure that all waste handling operations are conducted to prevent off-site environmental impacts from dust, litter, odour, noise or other emissions. Operating practices must minimize the potential of negative impacts on neighbouring properties.

Note that a Municipal Waste Recycling Site is not exempt from obtaining approvals for release of contaminants under Section 9 of the *Environmental Protection Act* (Certificate of Approval for air emissions). Please contact a ministry District Office for further information.

#### **3.3.6 Waste Allowed to be Accepted at a Recycling Site**

A Municipal Waste Recycling Site can receive waste that is sorted into the individual categories listed in Schedule 1 or Schedule 2 or in a commingled state. Commingling is the practice of mixing material to facilitate transportation, handling or storage. For example, source-separated food and beverage containers made of steel, aluminum and PET can be commingled by the generator and either sorted by the collector or transported in a commingled form for sorting at a Municipal Waste Recycling Site.

A Municipal Waste Recycling Site can only receive Schedule 3 waste if it is sorted into the individual categories listed in Schedule 3. For example, a site can accept loads of source-separated drywall from a construction project and loads of source-separated concrete and bricks, but it is prohibited from receiving loads of commingled drywall, concrete and bricks.



In addition, once Schedule 3 waste has been separated into individual categories, it must not be mixed or commingled with other wastes. Thus, for example, if a site receives separated loads of wood and drywall, these wastes cannot be combined together.

Incoming source-separated waste should be inspected prior to acceptance to ensure it does not contain any incompatible, or prohibited materials such as hazardous or liquid industrial wastes. The recycling site operator must implement procedures to prevent receiving wastes not listed on the schedules. Actual procedures will be site-specific, however, at a minimum, a control program should include visual inspection of the bulk load or taking representative samples where appropriate.

### **3.3.7 Waste Storage**

A good management practice is to process waste expeditiously, especially where wastes being received may contain residual organic materials. This is often the case, for example, with food and beverage containers where residues can cause odours or lead to other nuisance problems if they are not processed promptly.

Regulation 101/94 contains several requirements intended to ensure that waste is not allowed to accumulate at a Municipal Waste Recycling Site. The first of these measures is a limit on the amount of waste stored at the site which is awaiting processing. A site cannot store more than fifteen times its daily process design capacity. For example, if the site is designed to process 25 tonnes of waste per day, then the maximum amount of waste that may be stored on-site to await processing is 375 tonnes.

As an additional environmental protection measure, the upper limit on the total waste which can be on-site regardless of where it is in the system is three times the monthly process design capacity. All sites will be allowed to have a minimum of 2,000 cubic metres of waste regardless of the design capacity. Table 3.1 illustrates how the upper limit can be calculated.

**Table 3.1: Calculating Upper Limit on Waste Storage**

<b>A</b> Design Capacity (Tonne/Month)	<b>B</b> Calculated Volume (cu.m.)	<b>C</b> Upper Limit (cu.m.)
<b>Where density = .050 Tonne/Cu.m.</b>		
1000	60000	60000
500	30000	30000
200	12000	12000
<b>Where density = .500 Tonne/Cu.m.</b>		
1000	6000	6000
500	3000	3000
200	1200	2000
Column B = (3 X Column A) ÷ density Column C = larger of Column A or 2,000  Specific values for a site could be estimated at the design stage based on detailed breakdown of waste at various stages in the process.		

If waste is not processed through the site's processing system during any three-month period or for a transfer station, the maximum volume of waste that can be accumulated at the site is 2,000 cubic metres.

Different waste storage restrictions apply to a Leaf and Yard Waste Composting Site. See Chapter 5.0.

### **3.3.8 Residue Management**

Source-separated waste supplied by generators, or waste supplied by another processing facility, may contain unwanted residue materials which are not recyclable.

Regulation 101/94 stipulates that these residues must be removed promptly to an approved waste disposal site or a waste recycling site.

In addition, the regulation requires that the weight of the residue from all waste processing operations cannot exceed a ratio of 10 per cent of the weight of waste that was processed. This residue ratio can be calculated as the average over any six-month period to allow for daily, weekly or monthly fluctuations which are normal in these types of operations. The residue ratio restriction does not apply to a Leaf and Yard Waste Composting Site.

For sites which employ processes that add water, the residue ratio must be calculated on a dry weight basis so that any water added does not influence the results. For example, this would be important in a washing, de-inking or pulping system where water is normally added as part of the process to recover fibre. Appendix D provides additional information about the use of dry weight in the residue ratio.

Any hazardous or liquid industrial waste generated at the site must be managed in accordance with the requirements of Regulation 347 (General Waste Management) including generator registration and manifesting.

### **3.3.9 Allowed Destinations for Waste Transferred from a Recycling Site**

Regulation 101/94 permits Municipal Waste Recycling Sites to ship waste or the materials produced at the site to four types of destinations: users, distributors, Municipal Waste Recycling Sites or waste disposal sites.

It is expected that the materials produced by the site are shipped to persons who will use the materials such as a manufacturer. The regulation, however, also allows materials to be shipped to other persons, such as a materials broker, who then ship it to the appropriate end-user.

Some Municipal Waste Recycling Sites are not able to process wastes to a point where they are recyclable and instead may ship these to another Municipal Waste Recycling Site for further processing. In these situations the site is considered to be shipping wastes which are subject to the same controls as other wastes being shipped to a Municipal Waste Recycling Site.

Shipping to waste disposal sites with a Certificate of Approval is allowed because some of these sites are able to process waste for recycling purposes. The waste can also be sent to an approved landfill or incinerator for disposal. This should be done only under very exceptional circumstances. For example, where an existing customer cannot accept recyclable materials due to a strike or fire, and alternatives are not available; or a user goes out of business and leaves a recycling site with no markets for the wastes. Before the site directs the waste to a landfill all attempts should be made to locate alternative users or recycling sites.

### 3.4 Record Keeping

A recycling site, like any operation which involves materials management, will need an effective information system. Responding to day-to-day issues and developing long-term plans require accurate and timely data which quantifies and describes the materials management activities at the site.

Regulation 101/94 requires the records to be kept with respect to waste accepted at the site, waste processed at the site and waste and materials shipped from the site. See Chapter 5.0 for information on record keeping requirements which apply to Leaf and Yard Waste Composting Sites.

The records related to waste accepted at the site must include:

- 
- **type,**
  - **amount, and**
  - **sources.**
- 

The record related to waste processed at the site must include:

- 
- **how the waste was processed,**
  - **problems that occurred during processing, and**
  - **actions taken to correct any problems.**
- 

The record related to shipments from the site must include:

- 
- **type and amount of residues produced at the site,**
  - **processed wastes and other materials transferred from the site,**
  - **purposes for which these were transferred, and**
  - **persons to whom residues, wastes or materials were transferred.**
- 

The records may be retained at the site or at another location in the same municipality as the site. For example, an owner could retain them at the head office where they might also be used for administrative and management purposes. The off-site address where the records are located must be shown on the signs posted at the site.

### ***3.5 Reporting Required for Sites Owned by Municipalities***

A Municipal Waste Recycling Site which is owned by a municipality or operated on behalf of a municipality under a contract, must submit an annual report on its operations to the Director of the Waste Reduction Office. The annual report must use the form provided by the ministry (see the sample at the end of this guide) or on another form, provided that the required information is included.

An owner or operator is not required to submit an annual operating report for a Leaf and Yard Waste Composting site.

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## 4.0

# REQUIREMENTS FOR A MUNICIPAL WASTE RECYCLING DEPOT

All Municipal Waste Recycling Depots over 200 cubic metres in capacity must comply with the design and operating requirements in Regulation 101/94. These are minimum requirements and many operators will choose to implement additional controls and operating practices to accommodate site specific situations or management policies. This Chapter describes these requirements.

Although the following minimum requirements are expected to ensure that environmental protection objectives are achieved, all site operators are encouraged to manage their operations with a view to using the best possible practices consistent with the site's location, types of wastes handled and site capacity.

Note that the *Environmental Protection Act* includes provisions which permit Provincial Officers to have access to waste disposal sites at any reasonable time to monitor compliance with regulatory requirements.

### 4.1 Signs

Signs must be posted in prominent locations at the depot setting out the hours of operation of the depot, the name of the owner of the depot and the name and telephone number of a person to contact in an emergency.

In addition, the signs must list the categories of waste that will be accepted at the depot and any rules for the acceptance of waste or the use of the depot, such as restrictions on the maximum quantities of wastes that can be deposited. The depot cannot accept waste not listed on the sign.

## **4.2 Waste Allowed to be Accepted at a Recycling Depot**

A Municipal Waste Recycling Depot may only accept source-separated wastes from Schedules 1, 2 or 3. A depot may not receive waste which has been separated from other waste at another waste disposal site.

Source-separated wastes from Schedules 1 and 2 may be accepted whether they are commingled or sorted into individual categories. Source-separated wastes in Schedule 3 cannot be accepted if they are commingled. Hence, a load of drywall mixed with wood from a demolition project cannot be accepted. These wastes may only be accepted if they are separated into their respective categories.

## **4.3 Waste Storage**

All waste accepted at the site must be placed in containers. The number of containers provided and their capacity must be appropriate to handle the types and amounts of wastes which the depot is likely to receive. The container storage capacity should also be consistent with the scheduled pick-up frequency. A container should be able to enclose the waste on all sides. Open luggers should be used as containers with caution; and only if measures are in place to prevent unauthorized removal of waste and any environmental impact, such as litter or run-off.

## **4.4 Destinations Allowed for the Waste Transferred from a Depot**

Wastes accepted at a depot are normally shipped to destinations where the waste is processed such as a Municipal Waste Recycling Site. However, Regulation 101/94 also allows shipment to end-users or to distributors who, in turn, will ship to end-users.

Shipping to a waste disposal site that has been issued a Certificate of Approval is allowed because some of these sites are able to process waste for recycling purposes. The waste can also be sent to an approved landfill site. This should be done only under very exceptional circumstances. For example, an existing customer cannot accept recyclable materials due to a strike or fire, and alternatives are not available; or a user goes out of business and leaves a recycling depot with no markets for the wastes. Before the depot directs the waste to a landfill all attempts should be made to locate alternative users or recycling sites.

Security measures such as fences, gates, other barriers or the presence of attendants may be placed to prevent unauthorized removal of the waste or vandalism. Unauthorized removal can also be discouraged by using containers with lockable lids, among other types of security-design features.

Leaf and yard waste, if accepted at the depot, must be removed expeditiously because organic waste has the potential to produce odours if allowed to decompose. All leaf and yard waste must be removed from the depot within four days of its being accepted, not including a weekday public holiday.

Wastes must be removed according to a defined schedule. The schedule will depend on the quantities of wastes that have been accepted and the storage capacity at the depot. If some wastes accumulate faster than can be accommodated by the schedule, then the schedule must be adjusted and the wastes removed accordingly.

#### **4.5 Preventing Environmental Impacts**

Regulation 101/94 requires that reasonable care be taken to control environmental impacts which may be created by dust, litter, odour, noise, rodents or other animals and insects. The owner or operator can follow a number of options to accomplish this such as by using durable ground surfaces to reduce dust; by enclosing waste storage areas to control blowing litter and to reduce noise from customers depositing wastes in containers; and by providing sufficient containers to reduce overflow of wastes and prevent litter.

If not properly managed, litter may become a problem, especially in unsupervised depots. The regulation requires litter to be picked up and removed at least once a week.



## 5.0

# REQUIREMENTS FOR A LEAF AND YARD WASTE COMPOSTING SITE

This chapter provides a detailed description of the additional regulatory requirements for Leaf and Yard Waste Composting Sites, including the notification and siting of the facility and, the operation and monitoring of the composting process.

Leaf and Yard Waste Composting Sites are defined as a type of Municipal Waste Recycling Site. As such they must conform with all requirements described in Chapter 3.0. Several exceptions to the requirements for Municipal Waste Recycling Sites which are applicable to Leaf and Yard Waste Composting Sites are summarized in Table 5.1.

**Table 5.1: Exceptions to Municipal Waste Recycling Site Requirements**

Total waste quantity on site	Limited to 18 times the monthly process design capacity.
Waste quantity awaiting processing	No quantity limit but waste must be incorporated into the composting mass within four days of being received.
Quantity of residue produced	Not applicable.
Record keeping	Records of operations, odour complaints, compost analysis and shipments of controlled compost must be retained.
Reporting	Annual reporting of site operations is not required.

### 5.1 Waste Storage

A Leaf and Yard Waste Composting Site must be large enough to receive and process leaf and yard waste, as well as to store bulking agents and to cure and store compost. Under Regulation 101/94, the quantity of compost stored on site, both finished compost and compost still being cured, must not exceed 18 months of the process-design capacity of the site. The 18-month limit is to ensure that efforts are made to market the material in a timely-fashion. A facility that has reached its storage limit has to stop receiving waste or market the finished product.

Leaf and yard waste can be allowed to accumulate for a maximum of four days before being incorporated into the composting mass. It is good practice to incorporate leaf and yard waste into the composting mass on the day received to minimize the potential for odours arising from uncontrolled decomposition of stored wastes. Four days storage are permitted so that the waste can be stored over a weekend.

## **5.2 On-Site Water Management**

Regulation 101/94 requires that reasonable care be taken to control nuisance effects such as odour. Since poor management of on-site water can lead to odour problems, the site design considerations described below are considered to be a component of reasonable care.

When selecting a composting site, the management of leachate and runoff should be considered. On-site water, generated as leachate from the compost mass or resulting from precipitation runoff, must be managed to prevent contamination of surface and ground waters and to prevent odours arising from ponds. In most situations, contamination can be avoided by maintaining the required distance from surface waters, wells, and other areas of concern, and by ensuring that the site is properly graded.

If impacts from leachate and runoff on ground and surface waters are anticipated, on-site treatment or disposal to municipal sanitary sewers may be required. Access to a municipal sanitary sewer may eliminate the need for dedicated on-site water management systems. The effluent, however, will have to meet local sewer use bylaws.

Section 53 of the *Ontario Water Resources Act* requires a Certificate of Approval in cases where runoff or leachate is discharged to a receiving body of water or the ground. To obtain a certificate, a sampling and testing program may be required and the effluent may have to receive some degree of treatment before discharge.

To eliminate the need for a Certificate of Approval under the *Ontario Water Resources Act*, site design should include provisions to ensure that leachate and runoff are contained. These provisions may include grading, berms and collection ditches, and ponds. By locating the site on a naturally impermeable base, or by constructing an impermeable base, any potential impacts on ground water from leachate and runoff can be reduced. The owner of the site should consider doing a hydrogeological or soils study if site conditions are unknown.

### **5.3 Waste Allowed to be Accepted at a Composting Site**

A Leaf and Yard Waste Composting Site must receive only leaf and yard waste. Separated clean wood waste, as described in Appendix B, either chipped or to be chipped on site, may be accepted at the site and used as a bulking agent during composting. There is no specific limit on the quantity of woody bulking agents that may be accepted or stored on the site, but the quantity should be consistent with the scale of the operation.

### **5.4 Odour Control**

Prevention of odours is a major objective of the composting operation. Odours created are usually caused by the leaf and yard waste becoming anaerobic before delivery to the site or during on-site decomposition. Odours can also arise from anaerobic conditions in the leachate and runoff collection ponds or incidental ponding of water on-site.

Good management practices focus on preventing odours by ensuring that the wastes received at the site are not in an anaerobic state, the composting mass is sufficiently aerated, and the on-site water is properly managed.

Any wastes received in an anaerobic state should be managed in a manner to minimize off-site impacts.

Regulation 101/94 requires that the composting mass be ventilated (by natural diffusion or aeration) to ensure aerobic conditions are maintained. For turned windrow composting, the regulation specifies minimum turning frequencies for the high rate and curing stages of the composting process. During the high rate stage, the turning frequency required in the regulation is a minimum to inactivate pathogens by exposing all of the material to thermophilic temperatures. Particularly during this stage, and possibly in the curing stage, more frequent turning may be required to provide the ventilation necessary to maintain aerobic conditions.

Regulation 101/94 requires that site owners and operators have a plan in place for dealing with odour problems and for recording and investigating odour complaints from the public. Elements of this plan could include: turning windrows only when weather conditions such as ambient temperature, wind direction, or local atmospheric inversions are suitable; employing substances to mask odours; and entombing odorous material in layers of finished compost.

For more information on odour prevention and control measures for Leaf and Yard Waste Composting Sites, refer to the publications from Association of Municipal Recycling Co-ordinators that are listed in section 2.1.4.

## **5.5 Processing Requirements: High-Rate Stage**

Under proper aerobic conditions, the compost mass initially enters the high-rate stage where thermophilic organisms rapidly decompose the material. Temperatures within the compost mass are in the 60°C range.

To ensure the inactivation of pathogens in the leaf and yard waste, windrow operations are required by Regulation 101/94 to achieve a temperature of at least 55°C on 15 different days. To ensure that the complete composting mass is exposed to this temperature, the regulation requires that the windrows be turned at least five times after the first 55°C temperature is recorded. Windrows may be turned more frequently as required to maintain aerobic conditions.

On the days the material is turned, the temperature will most likely drop below the required temperature. Therefore it will likely take more than 15 consecutive days to make the cumulative 15 days at 55°C. A temperature of at least 55°C must be achieved after the fifth turning.

For in-vessel composting, the temperature in the composting mass must be 55°C or higher on at least three different days.

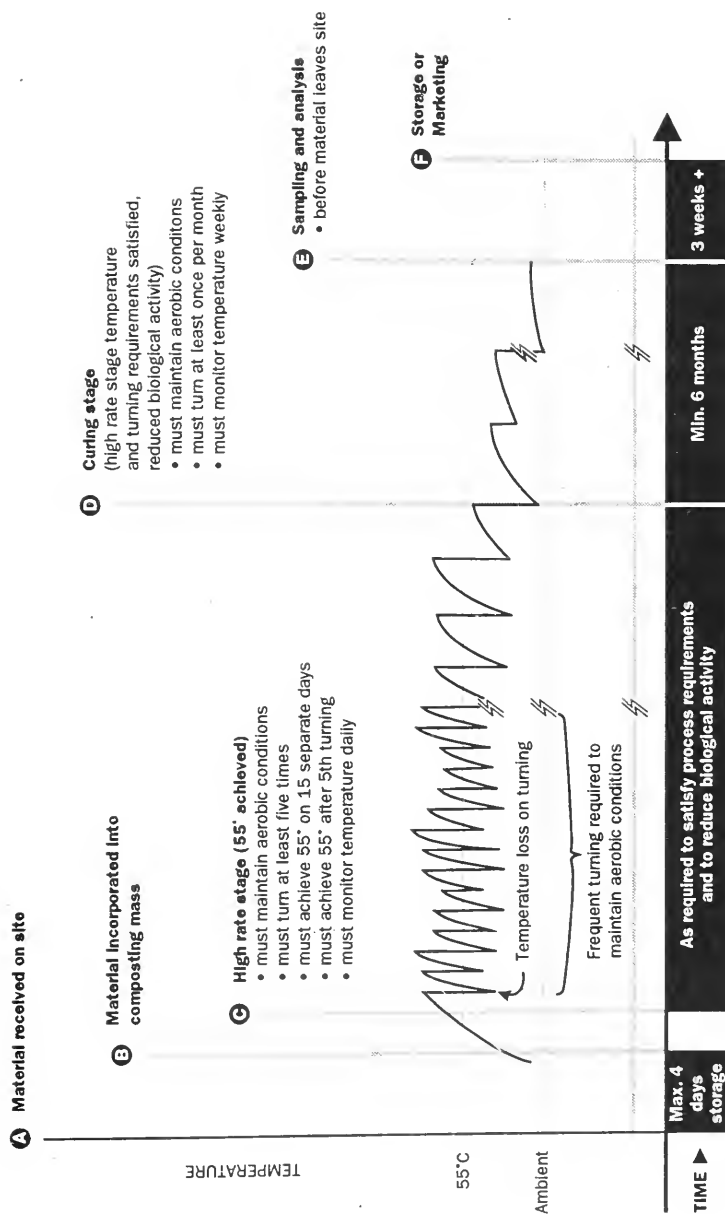
During the high-rate stage, the temperature of the composting mass must be taken daily until such time as all temperature requirements are met. Temperatures are measured one metre inside the composting mass. The number of measurement locations must be sufficient to produce a temperature reading representative of the entire composting mass.

## **5.6 Processing Requirements: Curing Stage**

The curing stage begins once the temperature and turning requirements of the high-rate stage are met and the biological activity of the compost mass has reduced to the point that elevated temperatures cannot be sustained. Regulation 101/94 requires that the curing period be a minimum of six months to ensure that the finished compost is stable.

The regulation also requires that the windrow be turned at least once each month while curing. More frequent turning may be required to ensure that aerobic conditions are maintained. The temperature of the curing compost mass must be taken at least weekly until the curing stage is complete. System requirements, process conditions and monitoring are presented in Figure 5.1.

Figure 5.1: Typical time-temperature profile of a composting windrow and process requirements under Regulation 1



## **5.7 Sampling and Analysis**

Regulation 101/94 requires that finished compost not leave the site nor be used until it has been sampled and analyzed. Sampling of the accumulated compost is usually undertaken once the curing period is complete or almost complete. Compost from several piles may be combined for sampling purposes.

### **5.7.1 Sampling Frequency**

The required sampling frequency is described below:

- 
- **The first sampling must take place before 10,000 cubic metres or the first year's production of finished compost has been accumulated, whichever occurs first.**
  - **Thereafter samples must be taken before an additional 10,000 cubic metres has accumulated or before one year has passed, whichever occurs first.**
  - **Sampling frequency however, can be reduced if all the analyses in the two years preceding the most recent analysis are consistent with the most recent analysis. In this case, samples need only be taken before 30,000 cubic metres is accumulated, or before one year has passed, whichever comes first.**
- 

### **5.7.2 Sampling Methodology**

Regulation 101/94 also requires that the following sampling method be used:

- 
- **Ten grab samples, each a minimum of 20 litres and taken from diverse points, at least one metre within the accumulated compost, must be taken.**
  - **The grab samples must be composited and analytical samples prepared from the composite sample.**
  - **The analytical samples must be analyzed as described in Chapter 6.0 of this guide.**
-

## **5.8 Record Keeping**

Regulation 101/94 requires that the owner and operator of a Leaf and Yard Waste Composting Site complete and retain records relating to the composting operation. Where records are required, they must be retained at the site for a period of three years unless otherwise stated.

A record containing information about each composting mass must be kept which includes temperatures of the mass and when they were measured, when the mass was turned, information about the curing process, and details about any significant problems that occurred during the composting or curing.

A record of all odour complaints from members of the public including actions taken to address the complaint must be kept. It is also useful to note processing activities and site and weather conditions at the time of the odour complaint. This information can be used to determine and eliminate the source of the odours.

Laboratory reports of the analyses of finished compost samples including supporting documentation must be kept. Chapter 6.0 describes the requirements of the compost analysis.

A record must be kept of the name, address and telephone number of each person to whom controlled compost is shipped. The record must be retained for a least 10 years after the shipment.

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## 6.0

# COMPOST USE

Regulation 101/94 establishes a process to facilitate the use of the compost produced from leaf and yard waste, and at the same time ensures that this use does not harm the environment. The process involves increasing the level of control as the quality of the compost decreases. This Chapter describes how this process works.

Regulation 101/94 specifies that finished compost is not to be removed from the site until the curing period is complete and unless it is part of accumulated compost that has been sampled as described in section 5.7 and analyzed. The accumulated compost from a site must be analyzed for the materials listed in Column 1 of Table 6.1. How the resulting analysis of the accumulated compost compares with the standards, will determine the level of control on the use of the compost.

### 6.1 *Unrestricted Use*

If, according to the analysis, the concentrations of the substances in Column 1 (Material) of Table 6.1 are less than the concentrations in Column 2 (Maximum concentration for regular compost), then the compost is not subject to Part V of the *Environmental Protection Act* and its use is unrestricted. In effect, the finished compost is considered a product and not a waste.

### 6.2 *Management of Compost as a Waste*

If, according to the analysis, the compost contains a substance in Column 1 (Material) of Table 6.1 in a concentration greater than the concentration in Column 2 (Maximum concentration for regular compost), then the compost is designated to be a waste under the regulation. As a designated waste, its use is subject to the *Environmental Protection Act*.

#### 6.2.1 **Controlled Compost**

If, according to the analysis, the compost is a waste and the concentrations of the substances in Column 1 (Material) of Table 6.1 do not exceed the concentration in Column 3 (Maximum concentration for controlled compost), then it is determined to be controlled compost.



Provided it is used only in the manner specified, controlled compost is exempt from Part V of the *Environmental Protection Act*. As a result of this exemption, the sites to which controlled compost is applied, are not required to obtain a Certificate of Approval as an “organic soil conditioning site”. The site proponent still has the option of applying for an “organic soil conditioning site” certificate.

To be exempt from Part V of the *Environmental Protection Act*, controlled compost must be used in the following manner:

- 
- **The place where the compost is used must be within 200 meters of any part of a municipal water or sewage system.**
  - **The use of the compost must not increase the concentration in the soil of any material in Column 1 (Material) of Table 6.1 above the concentration in Column 4 (Maximum concentration in the soil resulting from use of controlled compost).**
  - **The person using the compost must keep a record, for at least 10 years after using the compost, of the date the compost was used, the amount used and the chemical analysis of the compost received from the producer.**
  - **Controlled compost may be used as a cover material at a landfill site.**
- 

Note that, the producer (the owner or operator of the Leaf and Yard Waste Composting Site), must provide the user of the controlled compost with the chemical analysis, and a notice that the compost is controlled compost with the above terms and conditions of the compost’s exemption. A suggested Notice for this purpose is contained in the forms section at the end of this guide.

## **6.2.2 Waste Requiring Permits**

If, according to the analysis, the compost contains any substance listed in Column 1 (Material) of Table 6.1 greater than the concentration in Column 3 (Maximum concentration for controlled compost), then it is not exempt and may only be used on sites which have received the appropriate approvals under Part V of the *Environmental Protection Act*.

Regulation 101/94 makes provision for application of waste to lands which have received *Environmental Protection Act* Part V approval as an “organic soil conditioning site.” The local District Office of the Ministry of Environment and Energy can provide guidance on how to obtain this type of approval.

**Table 6.1: Determining How Compost Containing Certain Materials Can Be Used**

<b>Material</b>	<b>Maximum concentration for regular compost (dry weight)</b>	<b>Maximum concentration for controlled compost (ppm dry weight)</b>	<b>Maximum concentration in the soil resulting from use of controlled compost (ppm dry weight)</b>
Arsenic	10 ppm	20 ppm	14 ppm
Cadmium	3 ppm	4 ppm	1.6 ppm
Chromium	50 ppm	50 ppm	120 ppm
Cobalt	25 ppm	25 ppm	20 ppm
Copper	60 ppm	100 ppm	100 ppm
Lead	150 ppm	500 ppm	60 ppm
Mercury	0.15 ppm	0.5 ppm	0.5 ppm
Molybdenum	2 ppm	3 ppm	4 ppm
Nickel	60 ppm	60 ppm	32 ppm
Selenium	2 ppm	2 ppm	1.6 ppm
Zinc	500 ppm	500 ppm	220 ppm
Plastic which will not fit through a size 8 mesh.	1 per cent	1 per cent	not applicable
Non-biodegradable material (other than plastic) which will not fit through a size 8 mesh.	2 per cent	2 per cent	not applicable

---

## 7.0

# WASTES EXEMPTED UNDER REGULATION 347

Regulation 347 (General Waste Management) includes provisions to exempt wastes from Part V of the *Environmental Protection Act* and Regulation 347. Any site or system which handles exempted wastes is not subject to the requirements in Part V or Regulation 347. For example, such an exempt site would not need to obtain a waste disposal site Certificate of Approval under Section 27.

This Chapter explains the waste exemptions under Regulation 347 related to the wastes listed in Schedules 1, 2 and 3 of Regulation 101/94. Figure 7.1 provides a step-by-step process to help determine whether or not a waste is exempt.

### 7.1 Wastes In Regulation 101/94, Schedules 1, 2 or 3

Regulation 347 provides a broad exemption for any single category of waste from Schedules 1, 2 or 3 of Regulation 101/94 which is transferred by a generator and destined for use in an agricultural, commercial, manufacturing or industrial process or operation. As long as there is a final user to which the waste is destined, these types of wastes can also be shipped through intermediate sites for shredding, baling, or bulking. Processing and sorting operations which are aimed at changing the nature of the wastes are not allowed if this exemption is being claimed.

Processes or operations at the final site to which the waste is destined must be used principally for functions other than waste management and must not involve combustion or land application of the waste.

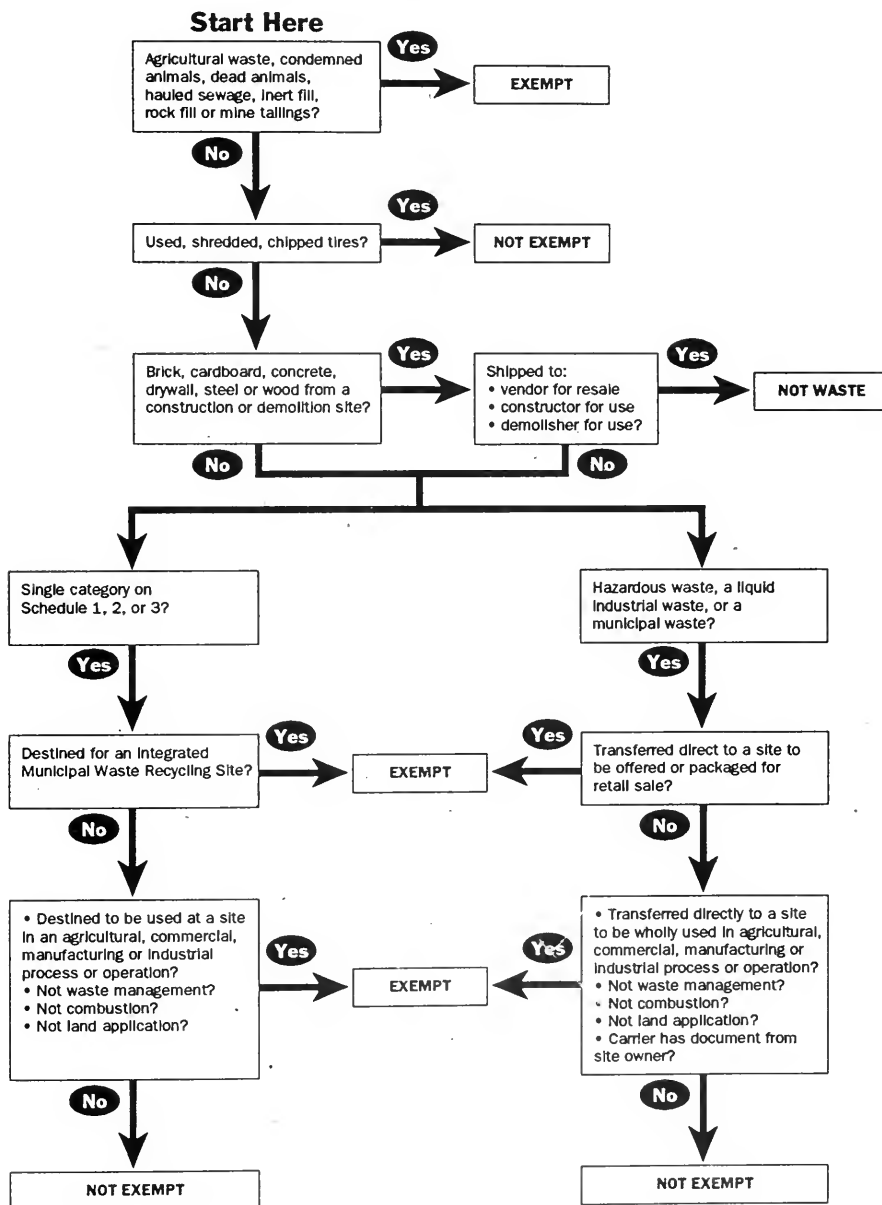
## 7.2 Other Wastes

Exemptions are also available for other municipal wastes and hazardous or liquid industrial wastes. Wastes in these categories are exempt if they are transferred by a generator directly to a site to be wholly used in an ongoing agricultural, commercial, manufacturing or industrial process or operation. The shipment must be direct from the generator to the final user without any intermediate handling or processing allowed. In addition, during shipment, a carrier must have documents from the waste receiver providing an agreement to accept the wastes, how the wastes are to be used, and a statement that the operation is ongoing. Processes or operations at the site to which the wastes are transferred must be used principally for functions other than waste management and must not involve combustion or land application of the waste. Used, shredded or chipped tires are not eligible for this exemption.

Municipal wastes and hazardous or liquid industrial wastes which are transferred directly to a site where the waste is promptly packaged or offered for retail sale to meet a realistic market demand are also exempt.

Further information related to the exemption for other municipal wastes, hazardous waste or liquid industrial waste are described in other Ministry documents, and in particular, the *Registration Guidance Manual for Generators of Liquid Industrial and Hazardous Waste*, July 1985.

**Figure 7.1: How to Determine Whether a Waste Qualifies for an Exemption Under Regulation 347**





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# APPENDIX A

## *Ministry of Environment and Energy – Regional and District Offices*

### **Central Region**

Halton - Peel District Office  
1235 Trafalgar Road, #401  
Oakville, ON L6H 3P1  
Tel. #: (905) 844-5747  
Fax #: (905) 842-1750

Toronto Regional and York -  
Durham District Offices  
7 Overlea Blvd., 4th Floor  
Toronto, ON M4H 1A8  
Tel. #: (416) 424-3000  
Fax #: (416) 325-6345

### **West Central**

Cambridge District Office  
P.O. Box 219  
320 Pinebush Road  
Cambridge, ON N1R 5T8  
Tel. #: (519) 622-8121  
Fax #: (519) 622-3119

Hamilton District Office  
Box 2112  
119 King St. West, 12th floor  
Hamilton, ON L8N 3Z9  
Tel. #: (905) 521-7650  
Fax #: (905) 521-7806

Welland District Office  
637-641 Niagara Street North  
Welland, ON L3C 1L9  
Tel. #: (905) 384-9845  
Fax #: (905) 735-0574

### **Mid-Ontario Region**

Barrie District Office  
54 Cedar Point Drive, Unit 1203  
Barrie, ON L4N 5R7  
Tel. #: (705) 726-1730  
Fax #: (705) 726-5100

Muskoka Haliburton District Office  
483 Bethune Drive  
Gravenhurst, ON P0C 1G0  
Tel. #: (705) 687-6647  
Fax #: (705) 687-3715

North Bay District Office  
Northgate Plaza  
1500 Fisher Street  
North Bay, ON P1B 2H3  
Tel. #: (705) 476-1001  
Fax #: (705) 476-0207

Sudbury District Office  
199 Larch Street, 11th Floor  
Sudbury, ON P3E 5P9  
Tel. #: (705) 675-4501  
Fax #: (705) 675-4180

### **Southeastern Region**

Belleville District Office  
470 Dundas Street East  
Belleville, ON K6H 1C1  
Tel. #: (613) 962-9208  
Fax #: (613) 962-6809

Cornwall District Office  
205 Amelia Street  
Cornwall, ON K6H 3P3  
Tel. #: (613) 933-7402  
Fax #: (613) 933-6402

Kingston District Office  
133 Dalton Street  
Kingston, ON K7K 6C2  
Tel. #: (613) 549-4000  
Fax #: (613) 548-6920

Ottawa District Office  
2435 Holly Lane  
Ottawa, ON K1V 7P2  
Tel. #: (613) 521-3450  
Fax #: (613) 521-5437

Peterborough District Office  
1477 Lansdowne Street West  
Peterborough, ON K9J 7M3  
Tel. #: (705) 743-2972  
Fax #: (705) 748-4192

### **Southwestern Region**

London Regional Office  
985 Adelaide Street South  
London, ON N6E 1V3  
Tel. #: (519) 661-2200  
Fax #: (519) 661-1742

Owen Sound District Office  
1180 - 20th Street East  
Owen Sound, ON N4K 6H6  
Tel. #: (519) 371-2901  
Fax #: (519) 371-2905

Sarnia Area Office  
265 Front Street North, #109  
Sarnia, ON N7T 7X1  
Tel. #: (519) 336-4030  
Fax #: (519) 336-4280

Windsor District Office  
250 Windsor Avenue, 6th floor  
Windsor, ON N6A 6V9  
Tel. #: (519) 254-2546  
Fax #: (519) 254-5894

### **Northern Region**

Kenora District Office  
P.O. Box 5150  
808 Robertson Street  
Kenora, ON P9N 1X9  
Tel. #: (807) 468-2718  
Fax #: (807) 468-2735

Sault Ste. Marie District Office  
747 Queen Street  
Sault Ste. Marie, ON P6A 2A8  
Tel. #: (705) 949-4640  
Fax #: (705) 945-6868

Thunder Bay Regional Office  
P.O. Box 5000  
435 James Street South, 3rd Floor  
Thunder Bay, ON P7C 5G6  
Tel. #: (807) 475-1205  
Fax #: (807) 475-1754

Timmins District Office  
83 Algonquin Blvd. West  
Timmins, ON P4N 2R4  
Tel. #: (705) 268-3222  
Fax #: (705) 264-7336

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# APPENDIX B

## *Description of Wastes Listed In Regulation 101/94, Schedules 1, 2, and 3*

### **SCHEDULE 1: BLUE BOX WASTE**

Schedule 1 wastes are those wastes normally associated with municipal Blue Box Waste Management Systems. These wastes consist primarily of post-consumer wastes generated from residential, institutional and commercial sources.

Schedule 1 is made up of two parts.

#### **SCHEDULE 1, PART 1: BASIC BLUE BOX WASTE**

The first part lists wastes which are collected in virtually all residential Blue Box programs operated by municipalities in Ontario. All municipalities over 5,000 population must collect these wastes in their Blue Box Waste Management Systems.

- Aluminum food or beverage cans (including cans made primarily of aluminum).
- Glass bottles and jars for food or beverages.
- Newsprint means newspapers, flyers and other publications made from newsprint.
- Polyethylene terephthalate bottles for food or beverages (including bottles made primarily of polyethylene terephthalate). All PET beverage bottles, whether soft drinks, alcohol or other beverages, are included.
- Steel food or beverage cans (including cans made primarily of steel). Some steel cans have a top made of aluminum.

#### **SCHEDULE 1, PART 2: SUPPLEMENTARY BLUE BOX WASTE**

The second part of Schedule 1 lists wastes which are less commonly collected for recycling in municipal Blue Box programs. Although in some cases these are similar to the more common materials, the markets or the collection infrastructure for these wastes may not be completely developed in Ontario. When collected and processed by recycling sites in accordance with industry practice or market specification these wastes are all recyclable.

All municipalities over 5,000 population must collect at least two of these wastes in their Blue Box Waste Management Systems.

- Aluminum foil (including items made from aluminum foil) means food wrap, food packaging, and kitchenware such as pie plates made from a thin sheet of aluminum.
- Boxboard and paperboard means packaging such as boxes and cartons made from a thick sheet of paper formed from one or more layers of paper fibre.
- Cardboard (corrugated) means packaging such as boxes and cartons made from a fluted (corrugated) paper glued between two paperboard sheets.
- Expanded polystyrene food or beverage containers and packing materials. Examples include cups, plates and foam meat trays and materials used to protect goods during shipment.
- Fine paper means sheets, envelopes or other paper products made of various types of paper other than newsprint and used for printing, writing, photocopying, computer printout and other similar purposes.
- Magazines.
- Paper cups and plates. These are single use items made of paperboard and may or may not be coated with other materials.
- Plastic film,
  - i) linear low density and low density polyethylene grocery bags or bags used for food or beverages. Examples include grocery carry-out sacks, bags for bread and produce and milk pouches.
  - ii) linear low density or low density polyethylene used for wrapping products. Examples include overwrap for paper towels or disposable diapers.



■ **Rigid plastic containers,**

i) high density polyethylene bottles used for food, beverages, toiletries or household cleaners (including bottles made primarily of high density polyethylene). Examples of products packaged in high density polyethylene are margarine, milk, water, juice, bleach, detergents and fabric softeners.

ii) polystyrene containers used for food or beverages (including containers made primarily of polystyrene). Examples of products packaged in polystyrene are yogurt, cookies, muffins, and carry-out foods and beverages.

■ **Telephone directories.**

■ **Textiles** (not including fibreglass or carpet) means items made from natural or synthetic woven fabrics, such as, clothing, towels, sheets and drapes.

■ **Polycoat paperboard containers** made primarily of paperboard and coated with low density polyethylene or aluminum, and used for food or beverages. Examples include aseptic drink boxes used for juice and fruit drinks or gable-top cartons used for milk or juices.

**SCHEDULE 2: RECYCLABLE WASTE OTHER THAN BLUE BOX WASTE**

Schedule 2 is primarily intended as a list for wastes which are considered to be acceptable for receipt at a Municipal Waste Recycling Site or a Municipal Waste Recycling Depot.

■ **Glass** means general purpose glass packaging products that can be recycled in glass furnaces to make glass containers such as bottles, jars and jugs used for foods, beverages, toiletries, cosmetics, pharmaceutical or other products. Glass also includes non-container glass wastes generated by manufacturers of products such as windows.

■ **Leather.**

■ **Leaf and yard waste** means leaves, grass clippings, tree and shrub trimmings, fruits and vegetables from gardens, flowers, natural Christmas trees (evergreens) and similar organic plant materials generated from gardening and yard maintenance activities at residential and other properties. Tree limbs or other tree parts may be included in leaf and yard waste but only if they are under 7 centimetres in diameter. Large tree limbs would be included in the wood category in schedule 3 as would lumber or other items manufactured from wood. No other organic wastes are included in the leaf and yard waste category. For example food wastes from a kitchen, food service operation, food processing facility or food handling operation are not included in the leaf and yard waste category.

■ **Metal** means any items made substantially of ferrous or non-ferrous metals. This includes items made from steel, aluminum, copper, nickel, and other metals and their alloys. Examples include various types of packaging, scrap metal from processing, machinery parts, pipe, cable and fencing. Many of the different types of recyclable metals are described in the ferrous metal and non-ferrous metals guides available through the Canadian Association of Recycling Industries.

■ **Paper** (including products made from paper). Different grades of recyclable paper are listed in the Paper Stock guide available through the Canadian Association of Recycling Industries.

■ **Plastic** means items made of polyethylene, polypropylene, polystyrene, and polyethylene terephthalate, etc. The plastic category does not include rubber products.

■ **Textiles** are items made from natural or synthetic fabrics such as clothing, sheets or carpets.

■ **Household appliances**, sometimes referred to as "white goods", are refrigerators, freezers, stoves, ovens, clothes washers, clothes dryers and dishwashers.

**SCHEDULE 3: RECYCLABLE WASTE OTHER THAN BLUE BOX WASTE THAT CANNOT BE COMMINGLED**

Schedule 3 lists categories of wastes which must not be commingled either with other Schedule 3 wastes or with wastes from the other Schedules. These materials typically come from a construction or demolition project but may come from other sources such as manufacturing industries.

■ **Brick and Portland cement concrete** means building materials made from clay or cement used in industrial, commercial, institutional or residential construction. The bricks and concrete must not contain hazardous materials such as asbestos, waste oils, or toxic paint residue.

■ **Drywall** (unpainted) means unpainted gypsum board used in industrial, commercial, institutional or residential construction. Drywall wastes include end cuts or broken pieces from construction projects or reject material at drywall manufacturing plants.

■ **Wood** (not including painted or treated wood or laminated wood) means waste from manufactured wood products including lumber, mouldings, chips, sawdust, shavings, pallets, skids, crates, furniture frames and similar items that are not painted, treated with preservatives or laminated items such as countertops. This category also includes woody parts of trees such as tree trunks and tree limbs.

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## APPENDIX C

### ***Land Application of Leaf and Yard Wastes***

Regulation 101/94 allows for land application of leaf and yard waste as an alternative to composting at a Leaf and Yard Waste Composting site. The Ministry of Environment and Energy regulates the application of wastes to agricultural lands under Part V of the *Environmental Protection Act* and Regulation 347. Agricultural lands to which leaf and yard waste is to be applied must first receive an "organic soil conditioning site" Certificate of Approval.

Applications for certificates of approval for organic soil conditioning sites must be submitted by the land owner and the waste generator, which in most cases would be the municipality. Certificates are processed through the ministry's district offices listed in Appendix A.

To be eligible for land application, it must be demonstrated that the waste will help crop production and create no adverse effect to land productivity, public and animal health and the quality of the environment. To ensure that leaf and yard wastes are applied in a beneficial manner, the ministry requires that the following information accompany the application form for a Certificate of Approval.

**Predominant tree species:** high proportions of such species as oak, walnut and some coniferous trees can adversely affect agricultural lands.

**Collection method:** different methods (bags, bulk vacuum) have the potential to introduce different contaminants, such as plastic.

**Type of pre-processing:** grinding, screening, etc.

**Application rate and corresponding application rate for nitrogen fertilizer:** local Ontario Ministry of Agriculture and Food offices can be consulted.

#### **Method of incorporation into the soil**

For further information on land application programs, refer to the publication, *Draft Interim Guidelines for the Utilization of Waste (Other Than Sewage Sludge) on Agricultural Lands*, Ontario Ministry of Agriculture and Food/Ontario Ministry of Environment and Energy, October 1992. It is available from local offices of both ministries.

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## APPENDIX D

### *Typical Procedure to Determine the Residue Ratio on a Dry Weight Basis*

The weight used to calculate the residue ratio should be dry weight to account for any water which may be in the waste and residue. To determine the residue ratio on a dry weight basis it is necessary to determine the moisture content of each of the wastes and residues from representative samples taken from these materials.

The samples are weighed before and after they are dried to constant weight at 105°C. The difference between these measurements is the moisture content. The dry weight of the respective materials are then determined. The sum of all dry weights of the residues must not exceed ten per cent of the sum of the dry weights of the incoming wastes.

The determination can be expressed as follows.

where,

$W_n$  = wet weight of waste n,

$WM_n$  = moisture content of  $W_n$  (as a decimal fraction),

$DW_n$  = dry weight of waste n,

$R_n$  = wet weight of residue n,

$RM_n$  = moisture content of  $R_n$  (as a decimal fraction), and

$DR_n$  = dry weight of residue n;

then,

$$W_n (1 - WM_n) = DW_n$$

$$R_n (1 - RM_n) = DR_n$$

The Regulation residue ratio criteria requires that:

$$\text{Sum } DR_n \leq 0.1 * \text{Sum } DW_n$$

# APPENDIX E

## Additional Sources of Information

### Associations

Association of Municipal Recycling  
Coordinators  
25 Douglas Street  
Guelph, Ontario N1H 2S7  
(519) 823-1990

Environment & Plastics Institute  
of Canada  
1262 Don Mills Road, Suite 104  
Don Mills, Ontario M3B 2W7  
(416) 449-3444  
"How to implement a Plastics  
Recycling Program"

Canadian Polystyrene Recycling  
Association  
7595 Tranmere Drive  
Mississauga, Ontario L5S 1L4  
(905) 612-8290

Canadian Pulp and Paper Association  
Sun Life Building, 19th Floor  
1155 Metcalfe Street  
Montreal, Quebec N3B 4T6  
(514) 866-6621

Canadian Standards Association  
178 Rexdale Boulevard  
Rexdale, Ontario M9W 1R3  
(416) 747-4000

Canadian Steel Can Recycling Council  
P.O. Box 2460  
Hamilton, Ontario L8N 3J5  
(905) 548-4523

Composting Council of Canada  
275 MacLaren Street, Ste. 3-Q  
Ottawa, Ontario K2P 0L9  
Tel: (613) 238-4014  
Fax: (613) 230-4143

Ontario Multi-Material Recycling  
Institute (OMMRI)  
26 Wellington Street East, Suite 601  
Toronto, Ontario M5E 1S2  
Tel: (416) 594-3456  
Fax: (416) 594-3463

Standards Council of Canada  
350 Sparks Street, Suite 1200  
Ottawa, Ontario K1P 6N7  
(800) 267-8220

### United States

American Paper Institute  
260 Madison Avenue  
New York, NY 10016  
(212) 340-0600

American Society for Testing &  
Materials (ASTM)  
1916 Race Street  
Philadelphia, PA 19103-1187  
Tel: (215) 299-5400  
Fax: (215) 977-9679

Institute of Scrap Recycling  
Industries (ISRI)  
1325 G St. NW #1000  
Washington, DC 20005  
(202) 466-4050

Society of the Plastics Industry (SPI)  
1275 K St. NW, #400  
Washington DC 20005  
(202) 371-5200

Steel Can Recycling Institute  
Foster Plaza 10  
680 Andersen Drive  
Pittsburgh, PA 15220  
(412) 922-2772

### Recycling Markets Information

Environment & Plastics Institute  
of Canada  
1262 Don Mills Road, Suite 104  
Don Mills, Ontario M3B 2W7  
(416) 449-3444  
Plastics Recycling Directory of Canada

Canadian Association of  
Recycling Industries  
50 Gervais Drive, Suite 502  
Don Mills, Ontario M3C 1Z3  
(416) 510-1244

Canadian Recyclers Directory  
Recoup Publishing Ltd.  
P.O. Box 100  
Chesterville, Ontario K0C 1H0  
(613) 448-2383

Municipality of Metropolitan Toronto  
Metro Works Department  
439 University Avenue  
Toronto, Ontario M5G 1Y8  
(416) 392-4200

Ontario Management Board Secretariat  
Green Workplace Program  
900 Bay Street, Room M2-59  
Macdonald Block  
Toronto, Ontario M7A 1N3  
(416) 327-3777

Ontario (and Canadian) Waste  
Materials Exchanges  
Ortech International  
2395 Speakman Drive  
Mississauga, Ontario L5K 1B3  
(905) 822-4111

Recycling Council of Ontario  
489 College St. # 504  
Toronto, Ontario M6G 1A5  
1-800-263-2849

The Regional Municipality  
of Hamilton-Wentworth  
119 King Street West, 15th Floor  
P.O. Box 910  
Hamilton, Ontario L8N 4T9  
(905) 546-4417

The Regional Municipality of Peel  
10 Peel Centre Drive  
Brampton, Ontario L6T 4B9  
(905) 791-9400

The Regional Municipality of Waterloo  
Marlsland Centre  
Waterloo, Ontario N2J 4G7  
(519) 747-5010/1/2

### United States

American Recycling Market Directory  
Recoup  
P.O. Box 577  
Ogdensburg, N.Y. 13669

Northeast Industrial Waste Exchange  
90 Presidential Plaza, Suite 122  
Syracuse, N.Y. 13202  
(315) 422-6572



Ministère de  
l'Environnement  
et de l'Énergie

*As required by Ontario Regulation 101*

- Use separate form for each site.
- This report must be attached to the Municipal Waste Diversion Annual Report.
- Use separate sheet for additional information, if necessary.
- Send to: Director  
Waste Reduction Office  
40 St. Clair Avenue West, 7th floor  
Toronto, Ontario M4V 1M2

Reporting period	From	To
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Name of municipality		Telephone No.	
Mailing address			Postal code
Name of operator		Telephone No.	
Address of operator		Site address (if different from above)	
Postal code		Postal code	

### Recyclable Materials To Be Produced

Type	Tonnes
<b>Total</b>	<b>(A)</b>

[illegible]

Residues	Tonnes
Percent of residues ( $B \div A \times 100$ )	Percent (B)

*I hereby certify that the information provided is complete and correct.*

<p><i>I hereby certify that the information provided is complete and correct.</i></p>	
<p>Signature of authorized official</p>	<p>Date</p>

## MUNICIPAL WASTE RECYCLING SITE ANNUAL REPORT INSTRUCTIONS

- **Mailing Address** of the municipality. This address corresponds to the location where the authorized person certifying this report may be contacted.
- **Operator name** is the person or company operating the municipal waste recycling site for the municipality.
- **Operator address** is the business address of the operator.
- **Site address** is the location of the site. Complete this part if the site address is different than the operator address listed above.
- **Source Separated Materials Received** are the types and quantities of source separated materials accepted by the site for processing of source separated materials during the previous calendar year.
- **Recyclable Materials to be Produced** are the types and quantities of source separated materials transferred sent from the site for recycling during the previous calendar year.
- **Residues** are the quantities of wastes sent to disposal from the site.



Ministry of  
Environment  
and Energy

Ontario

# Public Notice of Municipal Waste Recycling Site Start-Up

*As required by Ontario Regulation 101*

Send to: Director  
Waste Reduction Office  
40 St. Clair Avenue West, 7th Floor  
Toronto, Ontario M4V 1M2

Complete and submit this form ninety (90) days prior to recycling site start-up.

Notice date	Day	Month	Year

Name of company (site owner/operator)		Telephone No.	
Mailing address		Postal code	
Site address		Postal code	Site telephone No.
Name of contact person	Telephone No.	Date source-separated material to be received	

## Description of Operation

	Site design capacity (tonnes per month)

## Source-Separated Materials Received

Material category	Tonnes per month

## Recyclable Materials Produced

Material category	Tonnes per month

## Certification

*I hereby certify that the information provided is complete and correct.*

Name of authorized official

Signature

Position title

Date

## **PUBLIC NOTICE OF MUNICIPAL WASTE RECYCLING SITE START-UP INSTRUCTIONS**

- . **Name of company or municipality** proposing the recycling site.
- . **Mailing address** where proponent can be contacted.
- . **Site address** of proposed location of recycling site.
- . **Name of contact person in case of emergency** - this person should be aware of site operations and be able to provide information on request to emergency services, such as, fire, medical or environmental.
- . **Date source separated material to be received** - indicate the date that source separated materials will initially be received. This date must be at least 90 days after the submission of this report.
- . **Description of operation** - briefly describe the processes to take place on the site, specifically indicating the process or equipment on which the site design capacity is based.
- . **Site design capacity** indicates the maximum quantity of materials (tonnes/month) the site is designed to handle. For example, site capacity may be limited by the design capacity of the slowest equipment.
- . **Source separated materials to be received** - indicate which source separated materials from Schedules 1, 2 or 3 are to be received at the site and what are the expected quantities.
- . **Recyclable materials to be produced** - indicate which materials will be produced at the site and in what quantities. For example, into which categories commingled source separated materials are to be sorted.

Submit a copy of this form to:

- i. the clerk of every municipality within which the site or any part of it is located, (i.e., local municipality, region or county),
- ii. the owner of every parcel of land within 120 metres of the site,
- iii. the Director, and
- iv. the local District Office of the Ministry.



## **PUBLIC NOTICE OF THE REQUIREMENTS FOR THE USE OF CONTROLLED COMPOST**

Controlled compost is a waste material under Part V of the *Environmental Protection Act* (EPA) and its use is subject to Regulation 101/94.

Regulation 101/94 provides a streamlined approvals process for the use of controlled compost. Controlled compost is exempt from Part V of the EPA, provided that it is used only in the manner specified.

### **Regulation 101/94 Requirements for the Use of Controlled Compost**

Controlled compost must be used in the following manner:

- The place where the compost is used is within 200 metres of any part of a municipal water or sewage system.
- The use of the compost will not increase the concentration in the soil of any material in Column 1 of Table 1 above the concentration in Column 3.
- The person receiving the compost is provided with a chemical analysis of the compost.
- The person using the compost keeps a record, for at least 10 years after using the compost, of the date the compost was used and the amount and chemical analysis of the compost.
- The person receiving the controlled compost receives notification which states that the compost is controlled compost and sets out the terms and conditions of the materials exemption from the EPA.

## Maximum Concentrations of Materials in Soil Resulting from the Use of Controlled Compost

Material	Maximum Concentrations for Controlled Compost (ppm dry weight)	Maximum Concentrations in the Soil Resulting from use of Controlled Compost (ppm dry weight)
Arsenic	20	14
Cadmium	4	1.6
Chromium	50	120
Cobalt	25	20
Copper	100	100
Lead	500	60
Mercury	0.5	0.5
Molybdenum	3	4
Nickel	60	32
Selenium	2	1.6
Zinc	500	220
Plastic which will not fit through a size 8 mesh.	1 per cent	not applicable
Non-biodegradable material (other than plastic) which will not fit through a size 8 mesh.	2 per cent	not applicable



